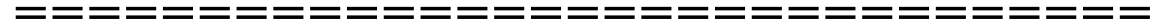


Portland Area RV Builder's Group Newsletter

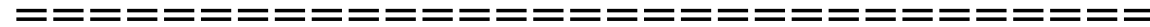
Issue 92.8

April 1993



March Meeting

Our March meeting was held at my house. Thanks to everyone who turned-out to view my RV-6 fuselage with the first few skins clecoed in place. Although Ken Scott made his usual appearance and participated fully (thanks for finding that cracked rib Ken), Bill Benedict and Van also made it to my garage and helped make it a terrific Builder's Group meeting. Maybe we'll see a contingency from the Van's factory more frequently at future meetings.



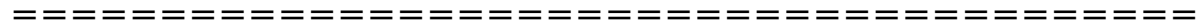
Next Meeting

- Place:** Frank Justice's House
9725 163rd Ave., Beaverton
- Date:** Thursday, April 8
- Time:** 7:00 PM

Frank's house is in the southwestern-most corner of Beaverton, near the top of Cooper Mountain, in Bishop's Ridge. Turn West on Wier Road off of Murray Boulevard; it is just a few blocks north of Murray Hill shopping center and Scholl's Ferry Road. Go up the mountain almost to the top where you turn right on 160th Avenue. Follow that two blocks to 163rd Avenue where you turn left. Go just over a block to 9725 163rd Avenue, the house with the 5-globe Victorian lamp post out front.

Builders Tips

While studying my RV-6 plans and construction manual, I was puzzled about the method described to install the floor stiffeners in the forward fuselage floor skin. The construction manual details how the builder must use segments made from 3/4" x 3/4" angle to temporarily attach the rear of each of the four floor skin stiffeners to the main wing spar bulkhead. I could see no benefit in going through the trouble to attach the stiffeners in this way. Why not just cleco the skin in place, crawl under the fuse, whip out some duct tape to help hold the stiffeners until the first few clecos are in place, and back-drill the suckers? It wasn't until I remembered that I had replaced this section of the construction manual with a revision covering the new overhead rudder pedals that I figured it out. The old pedals required an assembly method that allowed the stiffeners to be held in place without the skin. This provided access to the stiffeners so the rudder pedal mounting blocks could be installed. Because the new overhead pedals don't mount to the stiffeners, there is no longer a need to ever install the stiffeners without the skin. The new sequence for the overhead pedals as described in the construction manual revision had retained this apparently unnecessary extra step.



RV-6 Flight Report by Dave Hyde

Dave Hyde works in Maryland for the US Navy as a Stability and Control Flight Test Engineer. Most recently he has worked on the A-6 Intruder, the T-45A Goshawk, and of course his own Van's RV-4. Dave stopped-in while he was in the neighborhood to do some work at Whidbey and took his first RV flight in Van's RV-6A demonstrator. Thank-you Dave for this contribution to our newsletter.

Finally, here's a brief flight report on my RV-6A flight at Van's. I was more interested in handling than performance, and I think the results reflect that. In addition, since the cockpit layout is largely up to the builder, I don't mention much about it here. I had a few problems with switch locations, etc., but it doesn't have to be that way, so it wasn't considered here. Let me know what you think.

WX: -60 SCT, winds gusty (15 kt?), -35 deg F.
RV-6A, 150 hp, fixed-pitch prop.

Pilot + me (both large), 1/2 gas both tanks (I estimate that this would give us a relatively aft-cg condition, probably not max aft.)

Entry to the right side of the cockpit was easy, and I was able to step over the canopy rail and place my left foot on the floorboard without stepping on the seat. Once in the seat, strap in and startup proceeded normally. With a headset on the cabin noise level was very low. With the canopy closed field of view was excellent. I could see over the nose during taxi without stretching, and side-to-side FOV was unobscured. Takeoff acceleration was rapid, but I did not note takeoff distance or airspeed. Once airborne I was given the airplane and trimmed for climbout. Once trimmed for 120 mph the airplane tended to stay there, and required a positive control input to accelerate or decelerate. With two large people and 1/2 gas on board the VSI indicated -1200 fpm at 120 mph and full power. The pilot (Bill Benedict) said that the best ROC speed was closer to 80 mph (80 mph is actually about best angle-ed.) but 120 improved the FOV over the nose considerably. I would agree.

At about 3500 ft the pilot demo'd some mild maneuvering and then turned it over to me again. Again trimmability was good, in that I was able to trim for level flight at airspeeds between 120 and 160 mph with a few twists of the vernier trim control. I did not note the lateral trim change with airspeed changes, but did not change the trim setting after initially leveling the airplane and did not notice any objectionable rolloff or wing heaviness with speed changes. Once trimmed the airplane maintained airspeed well, even after being disturbed by gusts. I did not notice any phugoid (long period) oscillations during this part of the flight, but • msy not havs let anything go long enough to let it develop. I tried rudder doublets in excite the Dufch so!! mode, and found the rudder feel firm but positive. I estimate that moderate inputs (-25 lb?) induced small oscillations which damped out in 3-4 overshoots.

The short period mode, excited by longitudinal stick doublets, was heavily damped. A large input (2-3 in. fore and aft) resulted in one overshoot at most, but was usually deadbeat. I looked at lateral control effectiveness and sensitivity using full and partial stick deflection rolls. This provided some of the most surprising results of the flight. Control forces felt linear, and full deflection required about 15-20 lb stick force. I had expected much lighter forces here and longitudinally (see below). Roll rate was somewhere between 150-200 deg/sec average, and the time constant was very low (couldn't be estimated). Roll acceleration felt immediate, but the maximum roll rate was not so high as to make the airplane feel sensitive laterally. No sideforces were noted during abrupt input rolls, and the "sideslip" ball stayed within approx. 1/4 ball of center. Capturing (rolling out) on a heading was very easy, requiring almost no compensation other than the initial stick input out of the bank and a check to capture wings-level.

A 3-g windup turn at 140 mph required about 15 lb and 2 in. aft stick. Forces were high enough to give good cues with only small deflections. Force and/or displacement was not noted during a 1-g power-fixed accel from 170 to 200 mph, but forces were moderate and deflections were small. Again, the forces were adequate cues in spite of the small deflections. Since we were loaded for an estimated mid to aft eg, I would expect these control forces to increase (eg moving forward) with most other loadings, but this is only an approximation. It looks like taking the passenger out would move the eg forward, as would adding fuel, but I'm not sure (yet).

A level flight speed check at 3000 ft resulted in approx. 175 mph at normal cruise power. OK, what was normal cruise power? I DON'T REMEMBER! (oops). On the way back to the field at NCP and 200 mph there was only a moderate rate of descent. Pulling the power back resulted in a moderate deceleration which was greatly increased by lowering the flaps to full deflection. I noticed that with full flaps and idle power airspeed decreased and sink rate built up much faster than I was prepared for and required a large application of power to overcome. This power increase was difficult due to the operation of the vernier/pushbutton throttle. (I hesitate to include this because the throttle operation is largely a function of

builder choice, and practice can quickly overcome these characteristics.) At this point the pilot took control (I got it, I got it!) and finished the approach. Approach speed and landing distance were not estimated, but were qualitatively moderate and short (SHORT!) respectively. Taxi and shutdown were uneventful.

Summary:

Overall I was extremely impressed with the characteristics of the airplane. After hearing so much about the sensitivity and "lightness" of the controls I was relieved to find that the controls are not particularly light, but the deflections required are very small, giving the impression of sensitivity without a tendency to over-control. In general the airplane had a very solid feel to it, and I think that with a minimum amount of familiarization a pilot with average skills could handle it. Performance was also impressive, but was not strictly measured.

Goods (ones I didn't expect): Control force gradients/control feel Adverse yaw (or lack thereof)

Others: Large increase in power required with flap deflection. (Really not that big a deal.) Dave

Hyde

So I said to the Navy, "These are my opinions, go and get your own."

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Political Soapbox

I frequently hear some builders and EAA members complain about how AOPA is oriented too much toward the corporate, turbine, or "big iron" pilots. Well, I assure you that AOPA is plenty active in GA issues important to the rest of us too. Here's a copy of the letter AOPA President Phil Boyer mailed out to all AOPA members. Please write by April 10 or we'll have no one to blame when we're taxed out of the sky. . Time is short. Contact the AOPA for more details on the "4 For 4" Plan,

Phil Boyer, AOPA President

March 23, 1993

Dear Earl Brabandt:

What do you really know about President Clinton's Economic Plan as it affects general aviation? For instance ...

. . . Avgas and Jet fuel taxes will go up 7-10 cents a gallon. The proposed BTU energy tax will impose \$100 million a year in new GA fuel taxes within three short years. By 1996, federal taxes on Avgas will total \$.22 a gallon!

47% INCREASE IN AVGAS TAXES!

... And a new annual registration fee for aircraft will cost GA \$151 million over five years! The fee will apply equally to Cessna 150s and big Gulfstream jets alike.

\$90 PER PLANE IN OCTOBER '93 ...

\$278 PER PLANE BY 1997!

Earl Brabandt, all of us in AOPA want to do our fair share to help President Clinton reduce the deficit and stimulate the economy. But these tax increases aren't fair; they're biased against an already fragile aviation industry, and they aren't the answer to the nation's problems. Congress is already working on the Clinton Plan. Before anybody raises aviation's taxes, Congress and the Administration should cut unnecessary programs and wasteful spending first.

SOLUTION: AOPA'S "4 FOR 4" PLAN

That's why I'm writing you. President Clinton said he was open to alternatives, therefore AOPA has developed a solution: Cut four billion-dollars out of four troubled FAA programs. This does far more than raising taxes on general aviation \$500 million.

But, we need your help to make sure Congress gets the message. Here's what you can do: First, look at the details of the President's tax and budget proposals inside this letter. Second, examine the details of our cost-saving alternative.

Then write your elected officials listed below and tell them the Energy Tax and Registration Fee are unfair to general aviation. Instead, ask them to cut \$4 billion as our contribution to deficit reduction. Write to these addresses:

Senator Mark O. Hatfield
United States Senate
Washington, DC 20510

Senator Bob Packwood
United States Senate
Washington, DC 20510

The Honorable Elizabeth Furse
U.S. House of Representatives
Washington, DC 20515

With your help, we can all work together to cut the deficit, reduce waste and lower taxes. Thank you.

Phil Boyer

P.S. Please send copies of your letters to me at: AOPA, 421 Aviation Way, Frederick, Maryland 21701

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FEDERAL AVIATION ADMINISTRATION CONSIDERS DROPPING DUATS

Logged onto DUATS lately? I've been using it regularly and I appreciate the access it provides to raw weather information with none of the editorializing that often follows a "VFR flight not recommended" warning during phone briefings. The DUATS system is fast and easy. With all the FSS closures over the last few years, it's often the only way to obtain a complete "hard copy" of weather data. Here's what I saw last time I logged-on. (Sorry about all the editorial content this month but this is important stuff and hey, I'm the new guy-ready to take back the newsletter yet Steve?)

We recently learned the FAA is considering discontinuation of DUATS. Since it is early in the budget process, there is still time to reverse the decision. The following should be considered:

Since inception in 1989, DUATS acceptance by the aviation community exceeded all expectations.

Last year more than four million transactions--each consisting of an average length of four minutes--were logged on the program through DUATS at a cost to the Government of less than \$2.50 each, far below any other method.